

Abstract of the Disclosure

A hybrid random bead/chip based microarray includes a plurality of loose optical identification elements (or beads) comprising a substrate having at least one identifiable code disposed thereon. The are randomly placed on a substrate, e.g., tray, plate, slide, or "chip" in an identifiable position (or location) on the slide (not necessarily immobily fixed). For example, the beads are randomly distributed (but oriented) in one dimension along grooves in the slide. Then, each bead code is read and its location determined, i.e., the bead code and location are mapped to its location on the chip. The beads on the chip may then be read/examined (and re-read if desired) by a conventional chip reader. The beads may be functionalized with a desired probe and/or reacted with a desired analyte when in the loose state and/or when on the chip. After reading the chip, the beads may be removed from the chip for further or alternative processing.